What is claimed is:

1. An interactive digital music device providing multiple features for a user, comprising

5   programmable memory for storing digital audio and voice samples,

receivers for obtaining external sound signals,

means for playing said stored audio and voice samples and external sound signals,

means for storing automatic musical composition instructions, whereby the user is able to create unique musical compositions, and

10   means for mixing external sound signals with said unique musical compositions and stored audio and voice samples to provide altered audio and voice presentations.

2. The interactive digital music device of claim 1, comprising

means for providing visual effects complementing said altered audio and voice presentations.

15   3. The interactive digital music device of claim 2, wherein said means for providing visual effects, comprises

visual means for providing written song lyrics.

4. The interactive digital music device of claim 2, wherein said means for providing visual effects, comprises

20   visual means for providing complimentary light patterns for said altered audio and voice presentations.

5. The interactive digital music device of claim 1, wherein said programmable memory comprises

flash memory, and wherein said received radio signals, unique musical compositions and altered audio and voice presentations are digitized.

6. The interactive digital music device of claim 1, comprising

a television signal interface.

5 7. An Automatic Composer in a digital multi-media device for composing a musical piece according to automatic composition instructions and for mixing sound samples into it, comprising

a processor having an input and an output, said processor operating to implement the automatic composition instructions,

10 a memory for storing a music database for use in accordance with the automatic composition instructions,

a second memory for storing the sound samples, said first and second memories being connected to the processor input, a music synthesizer connected to the processor output for control by said processor and providing a synthesizer output, and

15 a summation and digital to analog conversion circuit for receiving processor and synthesizer outputs and for providing a summed analog output.

8. The Automatic Composer as set forth in claim 7, wherein said summation and digital to analog conversion circuit, comprises

a digital to analog converter for receiving said synthesizer and processor outputs and for
20 providing analog signals, and second a summation circuit for receiving said analog signals.

9. The Automatic Composer as set forth in claim 7, wherein said summation and digital to analog circuit comprises a digital adder for summing the processor and synthesizer outputs and for providing a summed digital output, and a digital to analog converter for receiving said summed digital output.

25 10. The Automatic Composer as set forth in claim 9, wherein said processor comprises an internal digital adder.

11. The Automatic Composer as set forth in claim 9, wherein said synthesizer comprises an internal digital adder.

12.   The Automatic Composer as set forth in claim 7, wherein said synthesizer comprises an additional processor for directly accessing said memory for storing sound samples, and wherein said synthesizer comprises means for handling sound samples as a special case of basic instrumental sounds.

13.   The Automatic Composer as set forth in claim 7, comprising a microphone for recording external sound samples, and means for starting and stopping recording.

14.   The Automatic Composer as set forth in claim 13, further comprising means for automatically eliminating the silent periods that precede and follow a useful portion of a recording, and means for implementing a speech compression algorithm to compress the useful portion of the recording.

15.   The Automatic Composer as set forth in claim 7, wherein said processor comprises

means for integrating said sound samples into musical compositions,

means for functioning to select said sound samples according to a pseudo-random sequence,

means for directing said sample to be played at a predetermined time between the beginning and the end of a musical bar as governed by certain musical rules,

means for directing any portion of the sound sample to be played from its entirety to any part thereof, and

means for optionally selecting repetition of the sound sample.

16.   The Automatic Composer as set forth in claim 7, wherein said processor comprises means for imparting special effects to the musical piece, whereby the musical piece is optionally modified with any ones of echo, vibrato, distortion, frequency modulation, and filtering effects.

17.   The Automatic Composer as set forth in claim 7, wherein said processor comprises

a clock operating at 25 MHz maximum, and wherein said first memory and said second memory comprise

a memory having a capacity of 2 MB maximum.

18.   An Automatic Soundtrack Generator in a digital multi-media device that is capable of mixing a signal from an external audio source in a video/audio record and/or play device with an internal audio source containing digitized sound files in accordance with predetermined mixing instructions, comprising

5   a processor,

a memory element connected to said processor for storing mixing the instructions and the digitized sound files,

a digital to analog conversion circuit for receiving the digitized sound files, and

a summation circuit for combining the signal from the external audio source with the

10   digitized sound files.

19.   The Automatic Soundtrack Generator as set forth in claim 18, further comprising

a digital musical synthesizer, and

a store of pre-recorded and automatically composed MIDI files, wherein selected ones of said store of MIDI files are connected to said digital musical synthesizer for providing the

15   internal audio source.

20.   The Automatic Soundtrack Generator as in claim 18, further comprising

a user accessible input, and

means for selecting the internal audio source connected to the user accessible input and defined by the user.

20   21.   The Automatic Soundtrack Generator as defined in claim 18, further comprising

an additional memory means containing preprogrammed instructions for defining the internal audio source, and

means for selecting the internal audio source connected to said additional memory means.

22.   The Automatic Soundtrack Generator as set forth in claim 18, comprising

25   means for selecting the internal audio source at video/audio record time.

23.   The Automatic Soundtrack Generator as set forth in claim 18, comprising

means for selecting the internal audio source when playing a previously recorded video/audio sequence.

24.   A Virtual Radio in a digital multi-media device that is capable of selecting,

30   according to given criteria, musical files from predetermined sound sources for playing from a speaker, comprising

a processor providing a digital output,

a memory element connected to said processor for storing the given criteria and the predetermined sources of musical files, and

a summation and digital to analog conversion circuit connected to receive said digital output and providing a predetermined analog sound output.

25. The Virtual Radio device as set forth in claim 24, further comprising

a digital musical synthesizer for adding MIDI files that are pre-recorded or composed automatically, according to the given criteria, to the predetermined sound sources.

26. The Virtual Radio device as set forth in claim 24, comprising

a radio receiver providing a sound output used as an additional selectable sound source.

27. The Virtual Radio device as set forth in claim 26, comprising means for providing voice files within the predetermined sound sources for combination with said radio receiver sound output.

28. The Virtual Radio device as set forth in claim 24, wherein sound samples are pre-recorded in the predetermined sound sources by a user, comprising means for mixing speech sound with the musical files.